AMENDMENTS TO THE CLAIMS

The current claims follow. For claims not marked as amended in this response, any difference in the claims below and the previous state of the claims is unintentional and in the nature of a typographical error.

1. (Currently Amended) A vending machine comprising:

a cabinet frame including top, bottom, side and rear walls that collectively define a central cavity;

a plurality of column walls positioned in the central cavity to define a plurality of stack areas, each of the plurality of stack areas being adapted to receive an associated plurality of product containers;

a door having an opening, said door being pivotally mounted to the cabinet frame to enable selective access to the central cavity in order to permit loading of product containers in the plurality of stack areas;

a product delivery chute arranged below the plurality of stack areas, said product delivery chute being adapted to conduct a selected one of the plurality of product containers to the opening in the door; and a dispensing system arranged between the plurality of stack areas and the product delivery chute, said dispensing system including:

a vend motor assembly including a vend motor, a motor shaft, a rotation sensor, a position sensor, a controller operatively connected to both the rotation sensor and the position sensor, and a cam member connected to the motor shaft, said controller operating the vend motor through a pulse width modulated signal to provide a soft start wherein a speed of the motor shaft is gradually increased upon activation of the vend motor and, upon completion of a vend operation, operating the vend motor in reverse to prevent pilfering of products;

a cradle member for supporting at least one of the plurality of product containers prior to a vend operation, said cradle member including a first end operatively connected to the motor shaft, a second end rotatably supported in the central cavity, and an intermediate portion, wherein rotation of the cradle member is regulated by the controller based on signals from the rotation and position sensors such that the cradle member is rotated to within 1/3° of a desired vend angle during a vending operation;

a load bar mounted for pivotal movement relative to the cradle member, said load bar being movable between a first position wherein the load bar supports the plurality of product containers, and a second position wherein the load bar releases at least one of the plurality of containers into the cradle member; and

a push arm located outside the plurality of stack areas and operatively connected between the vend motor assembly and the load bar, said push arm being adapted to be shifted upon rotation of the motor shaft to selectively move the load bar between the first and second positions in order to replenish the products contained in the cradle member.

2. (Currently Amended) A vending machine comprising:

a cabinet frame including top, bottom, side and rear walls that collectively define a central cavity;

a plurality of column walls positioned in the central cavity to define a plurality of stack areas, each of the plurality of stack areas being adapted to receive an associated plurality of product containers;

a door having an opening, said door being pivotally mounted to the cabinet frame to enable selective access to the central cavity in order to permit loading of product containers in the plurality of stack areas;

a product delivery chute arranged below the plurality of stack areas, said product delivery chute being adapted to conduct a selected one of the plurality of product containers to the opening in the door; and

a dispensing system arranged between the plurality of stack areas and the product delivery chute, said dispensing system including:

a vend motor assembly, including a vend motor and a controller, the controller operating the vend motor and, upon completion of a vend operation, operating the vend motor in reverse to prevent pilfering of products;

a cradle member for supporting at least one of the plurality of product containers prior to a vend operation, said cradle member including a first end operatively connected to the vend motor ~~motor shaft~~, a second end rotatably supported in the central cavity and an intermediate portion;

a load bar mounted for pivotal movement relative to the cradle, said load bar being movable between a first position wherein the load bar supports the plurality of product containers, and a second position wherein the load bar releases at least one of the plurality of container into the cradle; and

a push arm operatively connected between the vend motor assembly and the load bar, said push arm being adapted to be shifted upon rotation of the motor shaft to selectively move the load bar between the first and second positions in order to enable replenishing of products contained on the cradle member.

3. (Original) The vending machine according to claim 2, wherein the intermediate portion includes at least one notch that establishes a vend angle for dispensing a product container during a vend operation.

4. (Original) The vending machine according to claim 3, wherein the at least one notch is constituted by a plurality of terraced notches, said cradle being adapted to sequentially dispense product containers pass respective ones of the plurality of terraced notched as the cradle is rotated during sequential vend operations.

5. (Original) The vending machine according to claim 2, wherein the dispensing system includes a return spring, said return spring being adapted to return the push arm to a set position after the push arm moves the load bar to the second position.

6. (Original) The vending machine according to claim 5, wherein the push arm includes an ear element, said ear element being adapted to receive a first end of the return spring, with a second end of the return spring being fixed relative to the cabinet frame.

7. (Original) The vending machine according to claim 5, wherein the push arm includes a guide element adapted to ride along an opening provided on a front plate portion of the vending machine, said guide element guiding the push arm to the set position after moving the load bar to the second position.

8. (Original) The vending machine according to claim 7, wherein the guide element travels within an opening formed in a frontal support wall of the vending machine.

9. (Original) The vending machine according to claim 2, wherein the vend motor includes an output shaft having a first hub portion and a second hub portion, said second hub portion projecting axially from the first hub portion and being interconnected with the cradle member.

10. (Original) The vending machine according to claim 9, wherein the first hub portion includes a cam surface and a lifting arm, said lifting arm being adapted to activate the push arm to shift the load bar between the first and second positions.

11. (Currently Amended) A vending machine comprising:

a cabinet frame including top, bottom, side and rear walls that collectively define a central cavity;

a plurality of column walls positioned in the central cavity to define a plurality of stack areas, each of the plurality of stack areas being adapted to receive an associated plurality of product containers;

a door having an opening, said door being pivotally mounted to the cabinet frame to enable selective access to the central cavity in order to permit loading of product containers in the plurality of stack areas;

a product delivery chute arranged below the plurality of stack areas, said product delivery chute being adapted to conduct a selected one of the plurality of product containers to the opening in the door; and a dispensing system arranged between the plurality of stack areas and the product delivery chute, said dispensing system including:

a vend motor assembly including a vend motor, a motor shaft, a rotation sensor, a position sensor, and a controller operatively connected to both the rotation sensor and the position sensor, said controller, upon completion of a vend operation, operating the vend motor in reverse to prevent pilfering of products; and

a cradle member for supporting at least one of the plurality of product containers prior to a vend operation, said cradle member including a first end operatively connected to the motor shaft, a second end rotatably supported in the central cavity, and an intermediate portion, wherein rotation of the cradle member is regulated by the controller based on signals from the rotation and position sensors such that the cradle member is rotated to within 1/3° of a desired vend angle during a vending operation.

12. (Original) The vending machine according to claim 11, wherein the vend motor is a 24-volt DC motor.

13. (Original) The vending machine according to claim 11, wherein the vend motor assembly includes a motor housing, said motor housing supporting the vend motor, the rotation sensor, the position sensor and the controller.

14. (Original) The vending machine according to claim 11, wherein the dispensing system includes:

a load bar mounted for pivotal movement relative to the cradle member, said load bar being movable between a first position wherein the load bar supports the plurality of product containers, and a second position wherein the load bar releases at least one of the plurality of containers into the cradle member; and

a push arm operatively connected between the vend motor assembly and the load bar, said push arm being adapted to be shifted upon rotation of the motor shaft to selectively move the load bar between the first and second positions in order to replenish the products contained in the cradle member.

15. (Original) The vending machine according to claim 14, wherein the vend motor includes an output shaft having a first hub portion and a second hub portion, said second hub portion projecting axially from the first hub portion and being interconnected with the cradle member.

16. (Original) The vending machine according to claim 15, wherein the first hub portion includes a cam surface and a lifting arm, said lifting arm being adapted to activate the push arm to shift the load bar between the first and second positions.

17. (Currently Amended) A vending machine comprising:

a cabinet frame including top, bottom, side and rear walls that collectively define a central cavity;

a plurality of column walls positioned in the central cavity to define a plurality of stack areas, each of the plurality of stack areas being adapted to receive an associated plurality of product containers;

a door having an opening, said door being pivotally mounted to the cabinet frame to enable selective access to the central cavity in order to permit loading of product containers in the plurality of stack areas;

a product delivery chute arranged below the plurality of stack areas, said product delivery chute being adapted to conduct a selected one of the plurality of product containers to the opening in the door; and

a dispensing system arranged between the plurality of stack areas and the product delivery chute, said dispensing system including:

a vend motor assembly including a vend motor, a motor shaft, a rotation sensor, a position sensor, and a controller operatively connected to both the rotation sensor and the position sensor, said controller operating the vend motor in a soft start mode wherein a speed of the motor shaft is gradually increased upon initiation of a vend operation and, upon completion of a vend operation, operating the vend motor in reverse to prevent pilfering of products.

18. (Original) The vending machine according to claim 17, wherein the soft start ode is achieved through a pulse width modulated signal.

19. (Original) The vending machine according to claim 18, wherein the pulse width modulated signal initially starts with a low pulse width ratio.

20. (Original) The vending machine according to claim 19, wherein said low pulse width ratio is substantially doubled with each successive pulse until a 100% duty cycle is achieved.

21. (Canceled).

22. (Previously Presented) A method of performing a vending operation in a vending machine comprising:

selecting one of a plurality of containers arranged within a cavity of the vending machine;

signaling a vend motor unit to begin rotating a cradle upon which rests the selected one of the plurality of containers;

sensing a degree of rotation of a first rotating member of the vend motor unit;

monitoring a position of a second rotating member of the vend motor unit;

determining a vend angle position of the cradle based on the sensed degree of rotation at the first rotating member and the monitored position of the second rotating member;

rotating the cradle to within 1/3° of a desired vend angle to cause the selected one of the plurality of containers to fall into a delivery chute of the vending machine; and

storing an angle value corresponding to the vended product.

23. (Previously Presented) A method of performing a vend operation in a vending machine comprising:

selecting one of a plurality of containers arranged within a central cavity of the vending machine;

sending a pulse width modulated signal to initiate operation of a vend motor operatively connected to a cradle upon which rests the selected one of the plurality of containers;

controlling the vend motor in a soft start mode by regulating the pulse width modulated signal so as to gradually increase a rotational speed of the vend motor;

rotating the cradle through a desired vend angle to cause the selected one of the plurality of containers to be dispensed from the vending machine; and

storing an angle value corresponding to the vended product.

24. (Original) The method of claim 23, further comprising: starting the pulse width modulated signal at a low pulse with ratio.

25. (Original) The method of claim 24, further comprising: substantially doubling the low pulse width ratio with each successive pulse until a 100% duty cycle is achieved.